Activity Report of IEEE CSS TC Smart Grid

Period: January - May, 2017

Mission
The IEEE CSS Technical Committee on Smart Grid (TC SG) aims to advance and promote R&D activities in developing and applying control, estimation, forecast, and optimization methodologies for smart grid. The controls community substantially contributes to electricity grid modernization by providing technical solutions to challenging problems such as intermittency of renewable resources, modeling from devices to large-scale power systems, multi-level controls, prosumers and grid-edge intelligence, robustness and resiliency, and security of cyber-physical-human systems. Our TC provides a forum for TC members to understand, anticipate, and respond to current and future Smart Grids' control needs and opportunities, to share technical resources, to explore collaboration opportunities, and to bring together academia, government agencies, research laboratories, and industrial companies worldwide.

Summary
TC activities are grouped into the following categories:
- Semi-annual in-person meetings (one at *American Control Conference*, and the other at *IEEE Conference on Decision and Control*)
- Representing CSS at national and international smart grid activities, such as IEEE Smart Grid.
- Organize invited sessions at the CSS conferences.
- Publications that advance CSS and TC interests

Membership
The TC welcomes new members, especially graduate and undergraduate students who are interested in smart grid control. A form for student members was created.

Jakob Stoustrup stepped down as Chair, and Zhihua Qu was appointed as Chair from January, 2017.

Awards and Recognition
n/a

Technical Subcommittees
The TC has formed four technical subcommittees:
- Integration of Renewable Energy (lead: Amro Farid)
- Energy Storage and Electrified Transportation Subcommittee (lead: Scott Moura, co-lead: Javad Mohammadpour)
- Microgrids (lead: Nicanor Quijano)
- Smart Buildings (lead: John James)

Conferences, Workshops and Invited Sessions
The following invited sessions were submitted:
- Control Applications for Renewable Integration, IEEE CTTA 2017, led by Joshua Taylor and Zhihua Qu
- Estimation and Control of Electric Load Ensembles, IEEE CDC 2017, led by Ian Hiskens and Julio Braslavsky

TC Webpage
The TC webpage has been updated with new information of events and useful links. Member directory and group email (tcsg@ieeecss.org) were created for CSS-designated website.

TC Publications
A column summarizing TC SG activities was published in *IEEE Control Systems Magazine*, February 2017.

A new vision document on smart grid control is being developed, and this activity is led by Profs. Anuradha Annaswamy and Jakob Stoustrup.

TC Subcommittees
The TC plans to form the following operational subcommittees:
- Membership (lead: Changhong Zhao)
- Conference Activities (lead: Joshua Taylor)
- International Collaborations (lead: Jakob Stoustrup)

By Zhihua Qu, Technical Committee Chair (qu@ucf.edu)

April 18, 2017